REMARKS

Claims 11-27 are pending. Claims 13-20 are withdrawn. Claims 11, 12, and 21-27 are rejected.

CLAIM REJECTIONS UNDER 35 U.S.C. §112

Claims 11, 12, and 21-27 are rejected under 35 U.S.C. §112 ¶1 as not described.

The Examiner finds Applicants' third party Declaration, submitted October 10, 2008, unpersuasive because

> the question is whether a sufficient number of species are disclosed such that one of skill in the art would envision what compounds fit this class. Similar to the facts of Univ. of Rochester v G.D. Searle, the general class of peptides is known and a limited number of bombesin receptor binding molecules are known, but there is no description that distinguishes the broad class of peptides, or other possible molecules, from those which do not have the required function. Where such a link lacks, experimentation would be required, as admitted by Dr. Buolamwini, evidencing the Applicants were not in possession of the broader class of compounds of the genus.

Applicants respectfully distinguish their facts from those of *Univ. of Rochester v. G.D. Searle*. The *Rochester* applicants' claimed the use of a "non-steroidal compound that selectively inhibits activity of [a specific] gene"; while their specification described the compound's desired features, it did not identify a single specie, did not disclose such a compound, and did not provide or suggest how to make such a compound, except by trial-and-error research. The Federal Circuit ruled that applicants' did not disclose any compounds that would perform the claimed method, and provided no evidence that such a compound was known, without which the claimed method cannot be said to have been described. The Federal Circuit distinguished this holding from the CCPA's holding of sufficient description in *In re Herschler* (591 F.2d 693 (CCPA 1979)). Even though the *Herschler* applicant disclosed only one example of a "physiologically active steroidal agent," there was no question that numerous physiologically active steroidal agents were known to those of ordinary skill in the art. Such disclosure provided sufficient description for broad claims reciting a "physiologically active steroidal agent".

Unlike the *Rochester* applicants, Applicants in the pending application have described several compounds meeting the limitation of "E". Specifically, Applicants have described that "E" can be somatostatin receptor binding molecules, ST receptor binding molecules, neurotensin receptor binding molecules, bombesin receptor binding molecules, CCK receptor binding molecules, steroid receptor binding molecules, or carbohydrate receptor binding molecules (e.g., p. 8 lines 9-13). There is no question that numerous compounds having these binding properties are known to one of ordinary skill in the art. For example, the October 10, 2008 Declaration under 37 C.F.R. §1.132 of Dr. Buolamwini describes compounds meeting the requirements for a bombesin-receptor binding compound. Thus, *Rochester* is distinguished.

Applicants respectfully assert that the written description requirement requires sufficient detail so that a person of ordinary skill in the art can conclude that the inventors had possession of the invention. "The test for compliance with § 112 has always required sufficient information in the original disclosure to show that the inventor possessed the invention at the time of the original filing."); *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319 (Fed. Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1560

(Fed. Cir. 1991) ("The applicant must [] convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention."); MPEP §2163.02. In further support that they met this standard, Applicants now submit a second Declaration under 37 C.F.R. §1.132 filed with this Amendment.

The claimed invention is directed to a method of performing a phototherapeutic procedure. In this method, the claimed compound, E-L-Ar-X-N_3, is administered to a patient and allowed to accumulate in a target tissue of the patient. In addition, the target tissue is exposed to light of wavelength between 300 nm and 1200 nm.

The "peptide" to which the Examiner refers is believed to be a targeting group of the compound, (i.e., the "E" portion of the formula) that is recognized by, and targets the compound to, a particular site in the patient undergoing therapy (e.g., p. 9 lines 8-9, p. 12 lines 20-22).

Applicants' specification clearly conveys it had possession of this "E" portion of the formula, which is what the Examiner questioned, by reciting seven specific types of compounds that fit "E" in the claimed formula, in particular:

> ... somatostatin receptor binding molecules, ST receptor binding molecules, neurotensin receptor binding molecules, bombesin receptor binding molecules, CCK receptor binding molecules, steroid receptor binding molecules, and carbohydrate receptor binding molecules.

(p. 7 lines 2-7).

This disclosure indicates that the inventors had possession of the specific types of the receptor binding molecules that fit "E" (e.g., a compound that binds a bombesin receptor), as well as the specific category of the compounds that fit "E" (e.g., a peptide that binds a bombesin receptor). The identity of each and every type of molecule that fits these types and categories (e.g., the specific peptide that binds a bombesin receptor) is what Applicants' Declarant has already stated could be readily determined (e.g., from the literature). For example, Dr. Buolamwini pointed out in the October 10, 2008 Declaration under 37 C.F.R. §1.132, the identity of all the molecules that satisfy the description of, e.g., a "bombesin-receptor binding molecule", is readily determined from the literature. Dr. Buolamwini addressed each of the following issues that the Examiner raised:

- a description of a "bombesin receptor binding molecule"
- whether and where a "receptor binding molecules" would attach to a methene group (with methene defined as R-CH=R')
- whether the receptor binding molecule must have a peptide chain, and how a receptor binding molecule that does not have a peptide backbone would bind

This Declaration affirms that the specification clearly describes the subject matter claimed, puts the public in possession of this subject matter, and satisfies the inventors' obligation to disclose technologic knowledge and demonstrate possession of the invention claimed. MPEP §2163

Applicants' Declarant was cognizant that the rejection was based on lack of written description.

> I understand that the Examiner finds the application does not describe the above issues. The Examiner states at pp. 2-3 "The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention". I respectfully disagree with this assertion.

One skilled in the art should also be able to immediately envisage the product claimed from the disclosed process, as MPEP §2163 requires. Applicants' Declarant addressed at p. 4 first full paragraph of his October 10, 2008 Declaration that he could do this.

> I assert that the structure of the targeting group was sufficiently definite at the time of the invention. As a medicinal chemist who makes molecules that bind primarily to receptors or enzymes, I cannot immediately profane a molecule that binds to a receptor unless I have seen that molecule described as a ligand for the receptor, or I myself have made such a molecule. In the former case I can propose a potential ligand that will be a derivative or analog of an already known molecule. That does not mean that the molecule does not exist, however, and it does not mean that I cannot, by a single literature search, uncover it. It is reasonable that a chemist or medicinal chemist will perform a literature search to find a molecule that will bind a receptor. I assert that a bombesin receptor binding molecule is an art-recognized structural term. When one hears these as a medicinal chemist, one can envision such molecules. For example, E could be an antibody or part of a monoclonal antibody–FAB fragment, there are methods for linking antibodies to other compounds, etc. (see Zhou et al., Clin. Cancer Res. 9 (2003) 4953) (emphasis added).

The Examiner acknowledges that the general class of peptides is known and a limited number of bombesin receptor binding molecules are known. The Examiner states that there is no description that distinguishes the broad class of peptides, or other possible molecules, from those which do not have the required function.

As analyzed above, because the "required function" of the "E" portion of the formula is the function of targeting, all receptor binding molecules that target the claimed compounds to tissue to be treated fall within the claimed scope of "E". Information that is well known in the art need not be described in detail in the specification. MPEP §2163 II A (2) citing *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 90 (Fed. Cir. 1986).

For at least these reasons, Applicants assert that the public is put in possession of the invention, and that there is sufficient detail so that a person of ordinary skill in the art can reasonable conclude that the inventors had possession of the invention, as required for written description.

Applicants reiterate their request for the specificity and supporting affidavit, as permitted under 37 C.F.R. §1.104(d)(2), refuting Declarant's statements should the Examiner not find it persuasive.

Applicants thus assert the rejection is overcome and respectfully request it be withdrawn.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 11, 12, and 21-27 are rejected under 35 U.S.C. §103(a) as obvious over Sykes U.S. Patent No. 6,313,274 in view of Pinney.

> Examiner notes that while Sykes et al differentiates from Noujaim based on the photoactivation of the antibody rather than the aromatic azido derivative, such a limitation is not in the instant claims. The instant claims are simply directed to phototherapy, generally, which could include the photoactivation of either component.

Applicants respectfully disagree. The Examiner's interpretation is contrary to Applicants' teaching, consistently and throughout the specification, that it is the azide and chromophore that undergo photoactivation. For example,

Applicants' title is "Novel Aromatic Azides for Type I Phototherapy" (p. 1)

Applicants' summary states:

> The present invention discloses novel, organic azide derivatives and their bioconjugates for phototherapy of tumors and other lesions. More specifically, the present invention discloses organic azide compounds having the formula: E-L-Ar-X-N_3. N_3 is the azide moiety that produces nitrene upon photoactivation. Ar is a chromophore that undergoes sensitization. This chromophore (Ar) is an aromatic or a heteroaromatic radical derived from the group consisting of benzenes, polyfluorobenzenes, ... (p. 6 lines 12-21)

FIG 1 shows Ar activation by light to produce nitrene from azide.

Applicants' description states:

> In the compounds according to the present invention, N_3 is the azide moiety that produces nitrene upon photoactivation, and Ar is an aromatic chromophore that undergoes photosensitization. (p. 12 lines 15-17)

In further support, Applicants' specification notes that E need not be present, yet photoactivation will still occur.

Thus, the Examiner's interpretation negates the fact that the claims must be interpreted in light of the specification. In light of Applicants' specific and consistent teachings, examples of which have been cited above, the Examiner's statement, that "The instant claims are simply directed to a phototherapy, generally which could include the photoactivation of either [antibody or aromatic azido derivative] component" is incorrect.

Applicants assert the rejection is overcome and respectfully request it be withdrawn.

CONCLUSION

The application is believed to be in condition for allowance. Fee payment to Request Continued Examination and for the extension of time to respond is being simultaneously made by Electronic Funds Transfer. No other fees are believed due but, if deemed necessary, the Office is authorized to charge them to Deposit Account No. 20-0809.

The Examiner is invited to contact Applicants' undersigned representative with questions.

Respectfully submitted,

THOMPSON HINE LLP

/Beverly A. Lyman/

Beverly A. Lyman, Ph.D.
Reg. No. 41,961

Intellectual Property Group
P.O. Box 8801
Dayton OH 45401-8801
513 352 6596
513 241 4771 (facsimile)
724952